AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1-14. (canceled).

15. (currently amended): A method of monitoring the proportion X of a component in a gaseous mixture, said gaseous mixture having ~~at least~~ two components, a first component which is SF_6 and a second component selected from the group consisting of N_2 and CF_4, and being contained in an electrical switchgear enclosure, said method comprising the steps of:

a) measuring the pressure P, the temperature T, and the density ρ of the gas mixture contained in the electrical switchgear enclosure by means of sensors mounted on said enclosure,

b) determining said proportion X by processing the measured values of pressure P, temperature T and density ρ in a data-processing unit~~,~~ which delivers as output the proportion X determined by solving the following equations:

$$P(SF_6) = A1.\rho(SF_6) + A2.(\rho(SF_6))^2 + A3.(\rho(SF_6))^3$$

and

$$P(N_2) = A4.\rho(N_2),$$

$$P = X.P(N_2) + (1-X).P(SF_6),$$

$$\rho = \rho(N_2) + \rho(SF_6),$$

or

$P(CF_4) = A4.\ \rho(CF_4)$,

$P = X.P(CF_4) + (1-X).\ P(SF_6)$,

$\rho = \rho(CF_4) + \rho(SF_6)$

where A1, A2, A3 and A4 are functions of T,

$P(SF_6)$ and P (N_2 or CF_4) are the partial pressures of SF_6 and (N_2 or CF_4),

$\rho(N_2)$, $\rho(CF_4)$ and $\rho(SF_6)$ are the densities of N_2, CF_4 and SF_6,

and wherein step a) is carried out without tapping said gas mixture.

16. (previously presented): The method according to claim 15, in which said electrical switchgear enclosure is a high-voltage switchgear.

17. (previously presented): The method according to claim 15, in which said electrical switchgear enclosure is a gastight enclosure.

18. (canceled).

19. (currently amended) ~~A~~ The method according to claim 15, in which said proportion X of a component in the mixture is determined by the data-processing unit which stores a data table in a memory, said data table containing a plurality of data items representative of various proportions of said component in correspondence with data items representative of

various measurements of the pressure P, of the temperature T, and of the density ρ of the gas mixture containing said component.

20. (previously presented): The method according to claim 15, wherein the density is measured by means of a vibrating-blade sensor.

21. (previously presented): The method according to claim 15, wherein the density is measured by means of a capacitor whose capacitance is a function of the permittivity of the gas mixture.

22. (previously presented): The method according to claim 15, wherein the density is measured by means of an interferometer.

23. (currently amended): A method according to claim ~~18~~15, in which the data-processing unit is a microcomputer.

24. (currently amended): A method according to claim ~~18~~15, in which the data-processing unit is formed by microprocessors or microcontrollers.

25. (currently amended): Electrical switchgear provided with an enclosure containing a mixture of ~~at least~~ two dielectric gases under pressure, a first component which is SF_6 and a

second component selected from the group consisting of N_2 or DF_4, wherein the proportions of the dielectric gases in the mixture are determined by implementing a method according to claim 15.

26. (previously presented): Electrical switchgear according to claim 25, wherein the electrical switchgear enclosure is a high-voltage switchgear.

27. (previously presented): Electrical switchgear according to claim 25, wherein electrical switchgear enclosure is a gastight enclosure.

28. (currently amended): Electrical switchgear provided with an enclosure containing a gaseous mixture of ~~at least~~ two dielectric gases under pressure, a first component which is SF_6 and a second component selected from the group consisting of N_2 or DF_4, wherein the proportion X of one of these dielectric gases in the mixture is determined by implementing a method comprising the steps of:

a) measuring the pressure P, the temperature T, and the density ρ of the gas mixture contained in the electrical switchgear enclosure by means of sensors mounted on said enclosure,

b) determining said proportion X by processing the measured values of pressure P, temperature T and density ρ in a data-processing unit~~,~~ which delivers as output the proportion X determined by solving the following equations:

$P(SF_6) = A1.\rho(SF_6) + A2.(\rho(SF_6))^2 + A3.(\rho(SF_6))^3$

and

$P(N_2) = A4.\rho(N_2)$,

$P = X.P(N_2) + (1-X).P(SF_6)$,

$\rho = \rho(N_2) + \rho(SF_6)$,

or

$P(CF_4) = A4.\rho(CF_4)$,

$P = X.P(CF_4) + (1-X).P(SF_6)$,

$\rho = \rho(CF_4) + \rho(SF_6)$

where A1, A2, A3 and A4 are functions of T,

$P(SF_6)$ and $P(N_2$ or $CF_4)$ are the partial pressures of SF_6 and (N_2 or CF_4),

$\rho(N_2)$, $\rho(CF_4)$ and $\rho(SF_6)$ are the densities of N_2, CF_4 and SF_6,

wherein step a) is carried out without tapping said gas mixture~~, and wherein the gas mixture is made up of two components constituted by N_2 and SF_6 or by CF_4 and SF_6~~.

29. (currently amended): A method of monitoring the proportion X of a component in a gaseous mixture, said gaseous mixture having at least two components, a first component which is SF_6 and a second component selected from the group consisting of N_2 or DF_4, and being contained in an electrical switchgear enclosure, said method comprising the steps of:

a) measuring the pressure P, the temperature T, and the density ρ of the gas mixture contained in the electrical switchgear enclosure by means of sensors mounted on said enclosure,

b) determining said proportion by processing the measured values of pressure P, temperature T and density ρ in a data-processing unit, which delivers as output the proportion X determined by solving the following equations:

$$P(SF_6) = A1.\rho(SF_6) + A2.(\rho(SF_6))^2 + A3.(\rho(SF_6))^3$$

and

$$P(N_2) = A4.\rho(N_2),$$

$$P = X.P(N_2) + (1-X).P(SF_6),$$

$$\rho = \rho(N_2) + \rho(SF_6),$$

or

$$P(CF_4) = A4.\rho(CF_4),$$

$$P = X.P(CF_4) + (1-X).P(SF_6),$$

$$\rho = \rho(CF_4) + \rho(SF_6)$$

where A1, A2, A3 and A4 are functions of T,

$P(SF_6)$ and $P(N_2$ or $CF_4)$ are the partial pressures of SF_6 and (N_2 or CF_4),

$\rho(N_2)$, $\rho(CF_4)$ and $\rho(SF_6)$ are the densities of N_2, CF_4 and SF_6, and

c) running algorithms in the data-processing unit for correcting errors and drift specific to said sensors,

wherein step a) is carried out without tapping said gas mixture.

30. (currently amended): A system for monitoring the proportion X of a component in a gaseous mixture, said gaseous mixture having ~~at least~~ two components, a first component

which is SF_6 and a second component selected from the group consisting of N_2 or DF_4, and being contained in an electrical switchgear enclosure, said system comprising:

at least one sensor mounted on said enclosure for measuring the pressure P, the temperature T, and the density ρ of the gas mixture contained in the electrical switchgear enclosure, said sensor measuring without tapping the said gas mixture, and

a data processing unit for processing the measured values of pressure, temperature and density, the data processing delivering as output the proportion X determined by solving the following equations:

$$P(SF_6) = A1.\rho(SF_6) + A2.(\rho(SF_6))^2 + A3.(\rho(SF_6))^3$$

and

$$P(N_2) = A4.\rho(N_2),$$

$$P = X.P(N_2) + (1-X).P(SF_6),$$

$$\rho = \rho(N_2) + \rho(SF_6),$$

or

$$P(CF_4) = A4.\rho(CF_4),$$

$$P = X.P(CF_4) + (1-X).P(SF_6),$$

$$\rho = \rho(CF_4) + \rho(SF_6)$$

where A1, A2, A3 and A4 are functions of T,

$P(SF_6)$ and $P(N_2$ or $CF_4)$ are the partial pressures of SF_6 and (N_2 or CF_4),

$\rho(N_2)$, $\rho(CF_4)$ and $\rho(SF_6)$ are the densities of N_2, CF_4 and SF_6.

31. (currently amended): A system for monitoring the proportion X of a component in a gaseous mixture, said gaseous mixture having ~~at least~~ two components, a first component which is SF_6 and a second component selected from the group consisting of N_2 or DF_4, and being contained in an electrical switchgear enclosure, said system comprising:

first means mounted on said enclosure for measuring the pressure P, the temperature T, and the density ρ of the gas mixture contained in the electrical switchgear enclosure, said first means measuring without tapping said gas mixture, and

second means for processing the measured values of pressure, temperature and density and delivering as output the proportion X determined by solving the following equations:

$$P(SF_6) = A1.\rho(SF_6) + A2.(\rho(SF_6))^2 + A3.(\rho(SF_6))^3$$

and

$$P(N_2) = A4.\rho(N_2),$$

$$P = X.P(N_2) + (1-X).P(SF_6),$$

$$\rho = \rho(N_2) + \rho(SF_6),$$

or

$$P(CF_4) = A4.\rho(CF_4),$$

$$P = X.P(CF_4) + (1-X).P(SF_6),$$

$$\rho = \rho(CF_4) + \rho(SF_6)$$

where A1, A2, A3 and A4 are functions of T,

$P(SF_6)$ and $P(N_2$ or $CF_4)$ are the partial pressures of SF_6 and (N_2 or CF_4),

$\rho(N_2)$, $\rho(CF_4)$ and $\rho(SF_6)$ are the densities of N_2, CF_4 and SF_6.

32. (previously presented): A method according to claim 15, in which said gaseous mixture acts as an insulation gas in the electrical switchgear.